

REMARKS

Claim 1-26 are pending in the case.

Claim 1-26 have been rejected on various grounds.

Claim 1,3,9,11,17 and 23 have been amended.

Reconsideration of the application, and the claims, as amended, is requested.

REJECTION BASED ON 35 USC 112, 2nd PARAGRAPH

Claim 3, 11, 17 and 23 have been rejected as being indefinite. The term E_c/I_0 s is vague, and does not adequately describe the bounds of the invention.

The rejected claims have been amended. The amendment clarifies that the term E_c/I_0 , which is now clearly defined, refers to the power levels of the received and transmitted pilot signals. The term, E_c/I_0 is symbolic of the power levels and the specification on page 2 further clarifies the usage and the relationship to interference measurement.

REJECTION OF CLAIM 1-26 UNDER 3 USC 102(e)

The present invention concerns apparatus and a method for adaptively adjusting the power level of a forward link connection upon receipt of a service request. When a mobile station sends out a service request using an access channel to a base station, in accordance with the invention the mobile station also sends along with the access message the power level of the (base station) pilot signal received at the mobile station. At the base station, since the power level originally transmitted by the base station is known, the difference in the received signal when compared to the originally sent pilot signal is a measure of the interference which exists on the communication link which the base station is about to set up to the mobile station. This

measure is used at the base station to adjust the forward link power level to the appropriate level when the link is initially established.

The present invention avoids the necessity of establishing a call set-up using nominally set initial power levels in the forward link and adjusting those levels later using various loop control methods such as the one disclosed in the reference cited by the Examiner.

US Patent 5,675,581 to S.S. Soliman which is cited in rejection of all pending claims is concerned with simulating interference power signals by estimating a first composite signal and a normalized data rate. These estimates are again adjusted using a method known as closed loop power control. Ultimately, the signal power is based upon the power levels of those simulated signals. This approach is quite different from applicants where the power level of the pilot signal received by the mobile station is compared to the original power level sent by the base station to develop an interference measure. Further, this comparison is only possible at the base station since an indication of the received power level is forwarded to the base station along with the service request. Thus, each call request prompts a calculation of the interference measure adaptively for the particular call. Soliman does not function in this manner.

never
claimed

Turning now to the claims which have been amended to emphasize the differences with the prior art, amended claim 1 recites in the preamble that initial power levels are set "upon receipt of a service request". Also, that claim recites that the interference measure is calculated from "a mobile unit received pilot power generated by the base station." Finally, the claim recites that the power level in a forward link is based upon the calculated "interference measure". These elements are not taught or suggested by Soliman.

Independent claim 9, as amended, also recites that upon the establishment of a call (setting up a call) an interference measure is determined, and that the interference measure is based upon a mobile unit received pilot power received over an access channel. In claim 9 it also recites that the initial power level in the forward link is based upon the interference measure.

Again, independent claim 15 recites a method operative during the setting up of a call to a mobile system for forwarding the mobile unit received pilot power as part of the access probe; determining an interference measure from the received power, and setting the forward link power level in accord with the interference measure.

Finally, independent claim 21 recites a method for setting initial power levels in a forward link based upon an interference measure which is calculated from a mobile unit received pilot power and a base station transmitted pilot power.

The remaining dependent claims by virtue of their dependency from unique independent claims (as argued above) recite inventive combinations and are deemed allowable.

In summary, claims 1-26 recite a unique interference measurement system which utilizes the power level of the original pilot signal sent by the base station compared to the level of the same signal received at the mobile station to generate adaptively a power level for the forward link as each call is being set up. This is not taught by the cited art.

Reconsideration of the claims, as amended, in light of the foregoing remarks is respectfully requested. If there are any questions which can be resolved through a telephone call


U.S. Serial No. 09/157,758

KAMEL

2-15-11-11

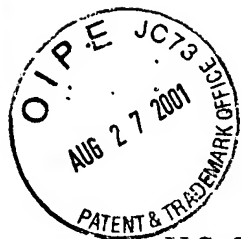
or interview, the Examiner is invited to call on (973) 596-4855 or to e-mail over (973) 639-6259.

Respectfully submitted,



Henry J. Walsh

att: a full set of claims showing the amendments to claims 1, 3, 9, 11, 17 & 23



U.S. Serial No. 09/157,758

KAMEL

2-15-11-11

Version without Markings

1. In a wireless communications system having a base station and a mobile unit, a method for setting initial power levels between the mobile unit and the base station upon receipt of a service request, said method comprising the steps of:

calculating an interference measure from a mobile unit received pilot power generated by the base station; and

setting an initial power level in a forward link based on said interference measure.

2. The method according to claim 1, wherein said step of calculating determines a difference between said mobile unit received pilot power and a base station transmitted pilot power.

3. The method according to claim 2, wherein said mobile unit received pilot power and said base station transmitted pilot power are defined by the ratio E_c/I_o , and wherein each said E_c/I_o represents a ratio between energy per chip to interference density.

4. The method according to claim 1, wherein said mobile unit received pilot power is included in a request for services transmission from the mobile unit.

5. The method according to claim 1, wherein said interference measure indicates interference levels due to other base stations and mobile receiver noise.

6. The method according to claim 1, wherein said interference measure is linearly related to said initial power level.

7. The method according to claim 1, wherein said interference measure is monotonically related to said initial power level.

8. The method according to claim 1, wherein said mobile unit received pilot power is included in an access channel transmission from the mobile unit.

9. In a wireless communications system having a base station and a mobile unit, a method for setting up a call between the mobile unit and the base station, said method comprising the steps of:

receiving a request for services over an access channel from the mobile unit;

determining an interference measure from a mobile unit received pilot power received over said access channel; and

setting an initial power level in a forward link traffic channel transmission based on said interference measure.

10. The method according to claim 9, wherein said step of determining includes the steps of:

extracting said mobile unit received pilot power from transmitted messages in said access channel; and

computing a difference between said mobile unit received pilot power and a base station transmitted pilot power.

11. The method according to claim 10, wherein said mobile unit received pilot power and said base station transmitted pilot power are defined by the ratio E_c/I_o , and wherein each said E_c/I_o represents a ratio between energy per chip to interference density.

12. The method according to claim 9, wherein said interference measure indicates interference levels due to other base stations and mobile receiver noise.

13. The method according to claim 9, wherein said interference measure is linearly related to said initial power level.

14. The method according to claim 9, wherein said interference measure is monotonically related to said initial power level.

21
15. In a wireless CDMA based communications system having a base station and a mobile unit, a method for setting up a call between the mobile unit and the base station, said method comprising the steps of:

receiving an access probe from the mobile unit;

determining an interference measure from a mobile unit received pilot power transmitted in said access probe; and

setting an initial power level in a forward link traffic channel transmission based on said interference measure.

16. The method according to claim 15, wherein said step of determining includes the steps of:

extracting said mobile unit received pilot power from transmitted messages in said access probe; and

subtracting said mobile unit received pilot power from a base station transmitted pilot power.

17. The method according to claim 16, wherein said mobile unit received pilot power and said base station transmitted pilot power are defined by the ratio E_c/I_o , and wherein each said E_c/I_o represents a ratio between energy per chip to interference density.

18. The method according to claim 15, wherein said interference measure indicates interference levels due to other base stations and mobile receiver noise.

19. The method according to claim 17, wherein said interference measure is linearly related to said initial power level.

20. The method according to claim 17, wherein said interference measure is monotonically related to said initial power level.

21. In a wireless communications system having a base station and a mobile unit, a method for setting initial power levels between the mobile unit and the base station, said method comprising the steps of:

receiving a base station transmitted pilot power;

calculating an interference measure from a mobile unit received pilot power and said base station transmitted pilot power; and

setting an initial power level in a forward link based on said interference measure.

22. The method according to claim 21, wherein said step of calculating determines a difference between said mobile unit received pilot power and said base station transmitted pilot power.

23. The method according to claim 22, wherein said mobile unit received pilot power and said base station transmitted pilot power are defined by the ratio E_c/I_o , and wherein each said E_c/I_o represents a ratio between energy per chip to interference density.

24. The method according to claim 21, wherein said interference measure indicates interference levels due to other base stations and mobile receiver noise.

25. The method according to claim 21, wherein said interference measure is linearly related to said initial power level.

26. The method according to claim 21, wherein said interference measure is monotonically related to said initial power level.